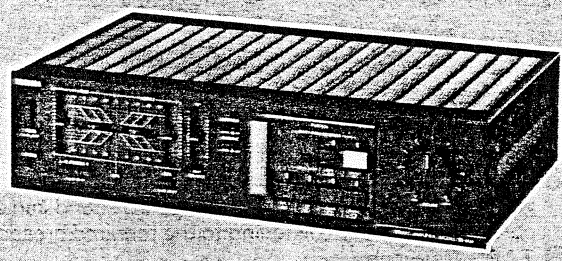
SERVICE DATA
FILE NO. 170-223

TOSHIBA

STEREO AMPLIFIER

SB-M36



SPECIFICATIONS

■ General

Power supply:	AC 120V, 60 Hz (TA, TC) AC 220V, 50 Hz (TE) AC 240V, 50 Hz (TU)
Power consumption:	3.0A (TA, TC) 200W (TE, TU)
Weight:	6.2 kg
Dimensions:	420(W) x 108(H) x 277(D) mm

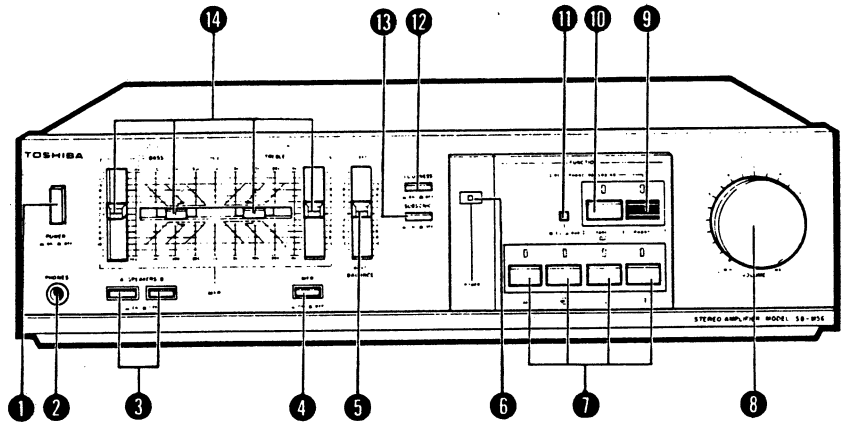
■ Amplifier

Continuous power output 63 Hz ∿ 12.5 kHz both ch. driven:	63W + 63W (8Ω) (TA, TC) 63W + 63W (8Ω, IEC) (TE, TU)
Total harmonic distortion:	at rated output: 0.02% at 1/2 rated output, 1 kHz: 0.007%
Frequency response:	10 Hz ∿ 100 kHz ($\pm^{0}_{3}$ dB) 20 Hz ∿ 20 kHz ±0.5 dB (RIAA equ.)
Power band width (IHF):	10 Hz ∿ 50 kHz (0.2% THD)
Load impedance:	4Ω ∿ 16Ω (TA, TC, TE) 8Ω ∿ 16Ω (TU)
S/N (IHF A network):	103 dB (TUNER/AUX/CD/TAPE) 73 dB (PHONO)
Input sensitivity/ impedance:	PHONO 2.5 mV/47 kΩ TUNER/CD 150 mV/21 kΩ AUX/TAPE 150 mV/21 kΩ
Output level:	TAPE REC 150 mV/3.3 kΩ
Tone control:	Bass: ±8 dB at 100 Hz Treble: ±8 dB at 10 kHz
Subsonic filter:	18 Hz 6 dB/oct
Loudness control:	+7 dB (at 100 Hz –30 dB)
Phono overload level:	130 mV (0.05% THD)

Specifications are subject to change without notice.

TA, TC, TE, TU
PRINTED IN JAPAN 22905439 July, 1985 Ⓢ

1. OPERATING CONTROLS



❶ POWER switch
Depress this switch to turn the power on, depress again to turn the power off.

❷ PHONES jack
Plug into this jack when listening through headphones.

❸ SPEAKER selectors
Speakers A and B can be operated independently.
Relation of speaker switches to sound output.

Switch B \ Switch A	ON	OFF
ON	Speakers A, B	Speaker B
OFF	Speaker A	No sound

Note: When either speaker A or B is connected to the amplifier, if both switches A and B are depressed, sound from the speaker will be cut off.

❹ MFR switch
Setting this switch to ON inserts the Multi Frequency Responsor circuit into the signal-path.
This permits adjustment of tone by changing the BASS and/or TREBLE controls. To obtain flat response, push to release the switch, OFF setting.

❺ BALANCE control
Slide this knob to adjust volume balance between left and right speakers.

❻ POWER indicator

❼ FUNCTION selectors
Choose the desired programme source by pressing one of these buttons:

PHONO: For a turntable
TUNER: For a tuner
CD: For a compact disc player or any kind of audio equipment.
TAPE 2: For the tape deck connected to the TAPE 2 jacks.

❽ VOLUME control
Turn this knob to adjust the volume level.

❾ PHONO REC switch
When this switch is pressed, the record sound can be recorded while you are listening to the required broadcast.

❿ TAPE 1 switch
Depress this switch for playback or recording with the tape deck connceted to the TAPE 1 jacks.

⓫ CD/AUX switch
Press the CD FUNCTION selector and operate this switch to listen to the unit connected to the CD or AUX jacks. Set the function selector to CD.

⓬ LOUNDNESS switch
Depress this switch for listening at very low volume levels. The loudness circuit emphasizes the low frequency region for a natural tonal balance at low volume. (This switch is effective between the zero and midpoint positions of the VOLUME control.)

⓭ SUBSONIC filter switch
Depress this switch to reduce noise at very low frequencies caused by warps in a record.

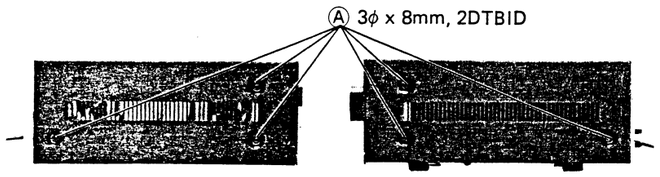
⓮ MFR controls
BASS – Slide upwards to increase bass response, slide downwards to reduce bass response.
TREBLE – Slide upwards to increase treble response, slide downwards to reduce treble response.
Flat response is obtained when the two tone controls are set to their zero positions.
When the controller located at the right of the BASS control or left of the TREBLE control are set, the sound level frequencies are increased or decreased.

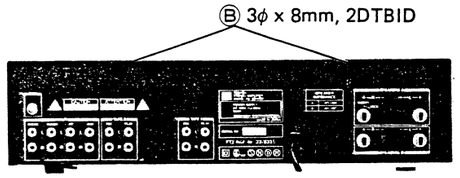
CAUTION: Before returning the unit to the customer, check that the resistance between both blades of AC plug and any accessible metal parts is more than 3MΩ after completion of servicing, using the circuit tester. (TA Model only)

2. DISASSEMBLY INSTRUCTIONS

TOP COVER REMOVAL

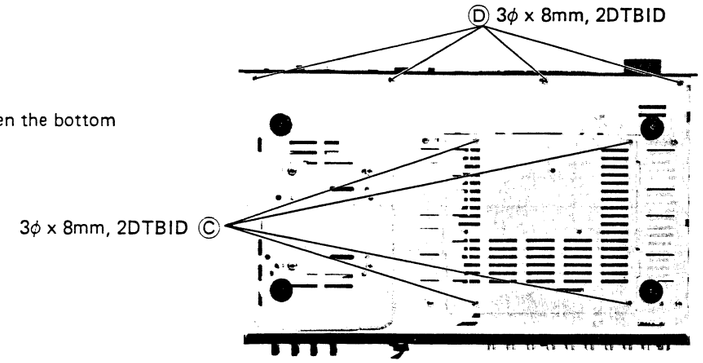
1. Remove six screws Ⓐ (3ϕ x 8mm) from each side of top cover and two screws Ⓑ (3ϕ x 8mm) from rear side of unit, then the top cover can be removed from the unit.





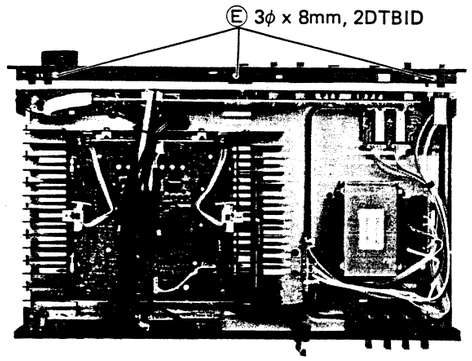
BOTTOM PLATE REMOVAL

1. Remove four screws Ⓒ (3ϕ x 8mm) then the bottom plate can be removed from the unit.



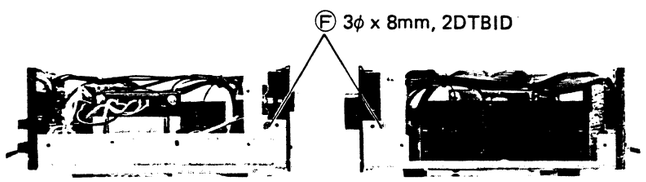
FRONT PANEL REMOVAL

1. Remove top cover.
2. Remove four screws Ⓓ (3ϕ x 8mm) from the bottom side.
3. Remove three screws Ⓔ (3ϕ x 8mm) from the top side.

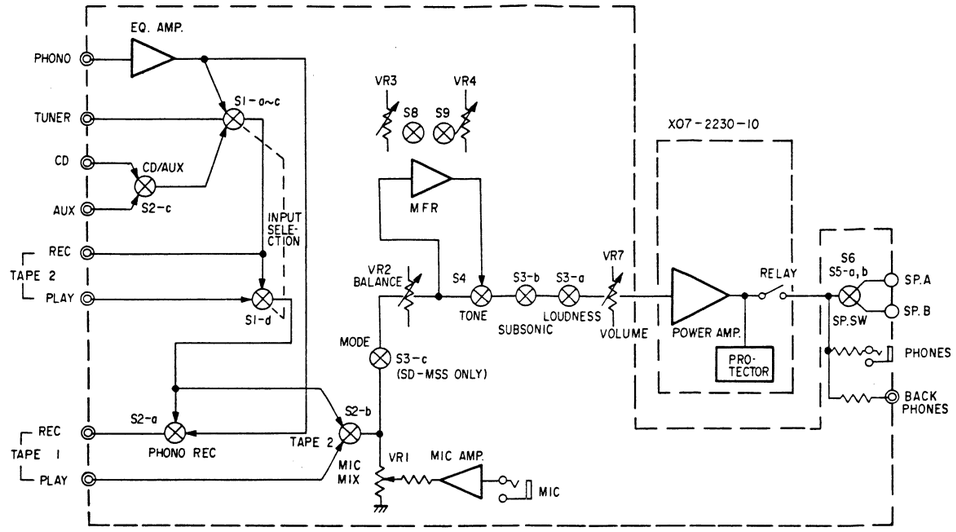


FRONT CHASSIS ASSEMBLY REMOVAL

1. Remove front panel.
2. Remove two screws Ⓕ (3ϕ x 8mm) from each side of main chassis, then the Front Chassis Assembly can be removed from the unit.



3. BLOCK DIAGRAM



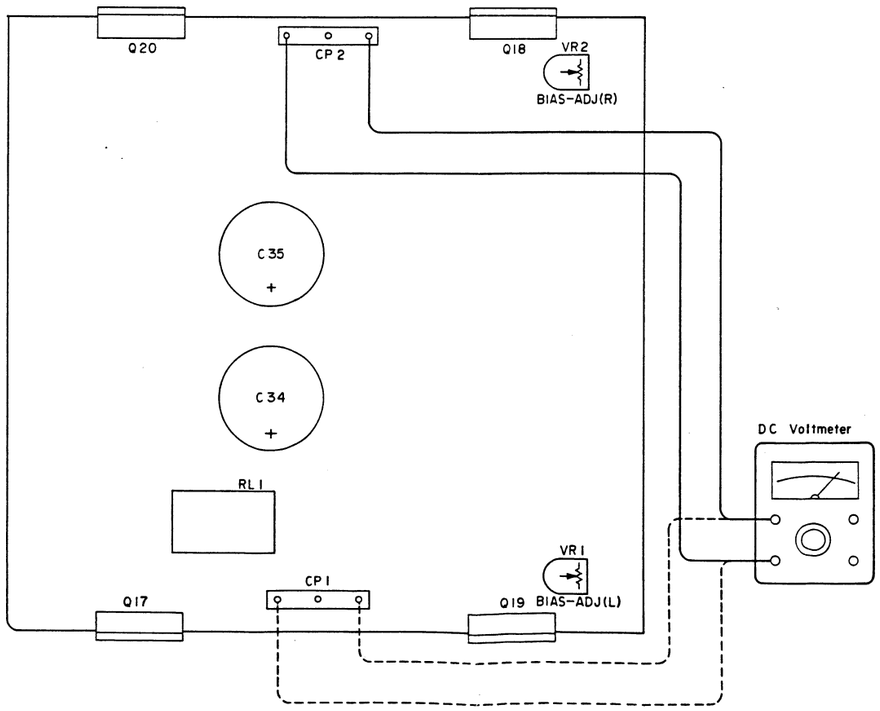
4. ADJUSTMENTS

IDLE CURRENT ADJUSTMENT (Left Channel)

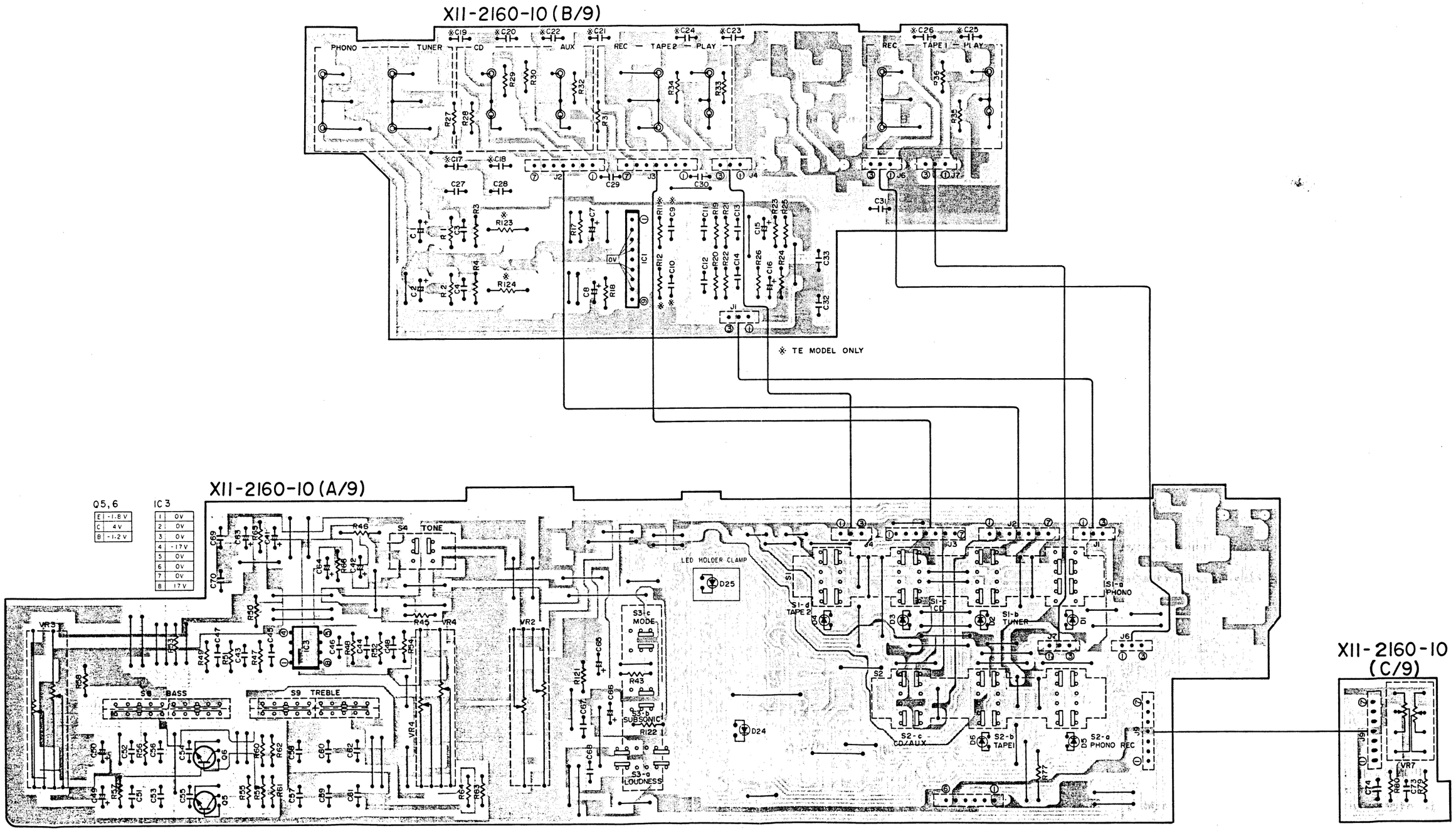
Adjust the resistance value of VR1 so that idle current is 20mV (90mA).

(Right Channel)

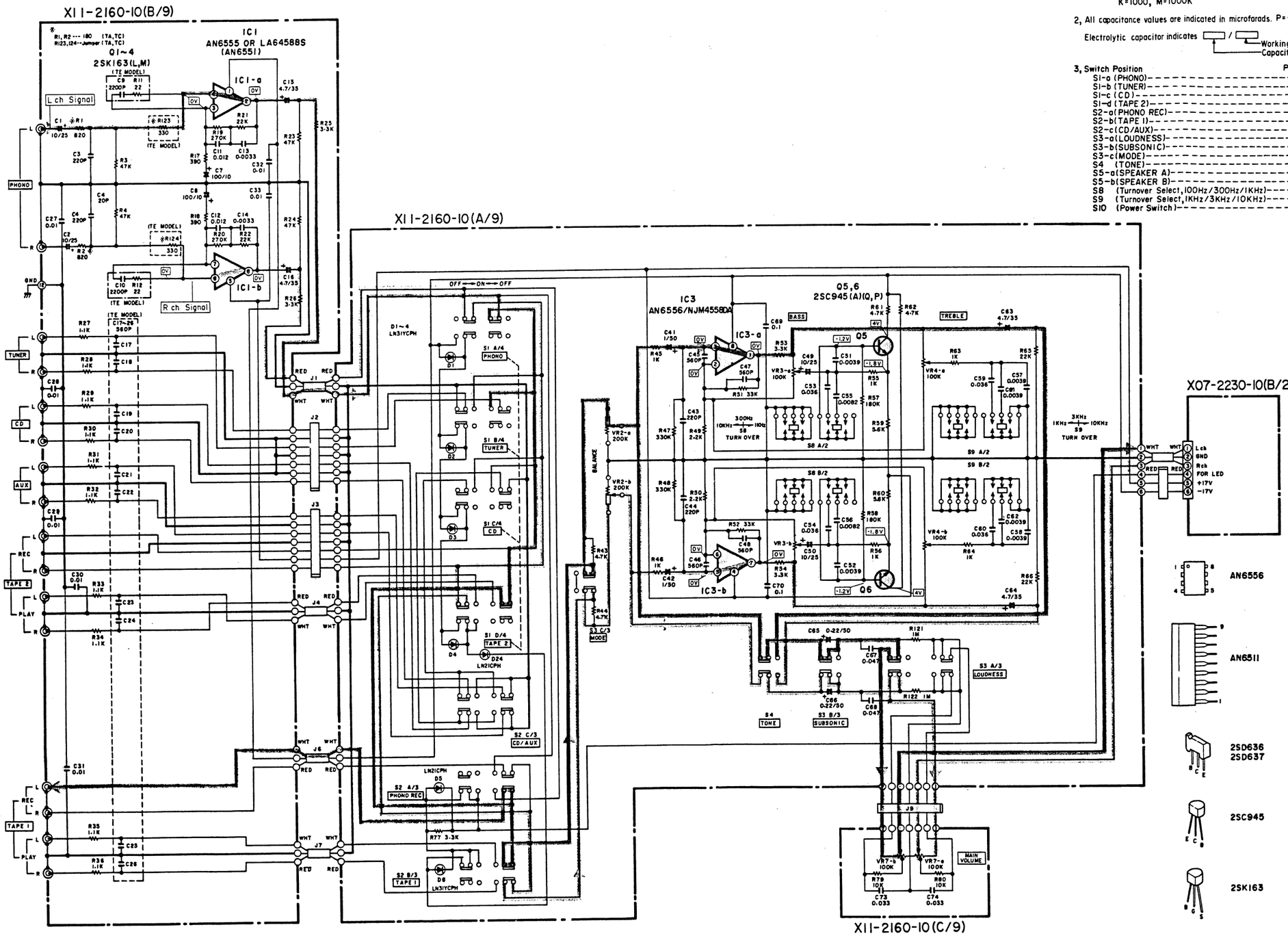
Adjust the resistance value of VR2 so that idle current is 20mV (90mA).



5. ELECTRICAL PARTS LOCATIONS



6. SCHEMATIC DIAGRAM



NOTES:
1, All resistance values are indicated in ohms.
K=1000, M=1000K

2, All capacitance values are indicated in microfarads. P=$\frac{1}{10^{12}}$

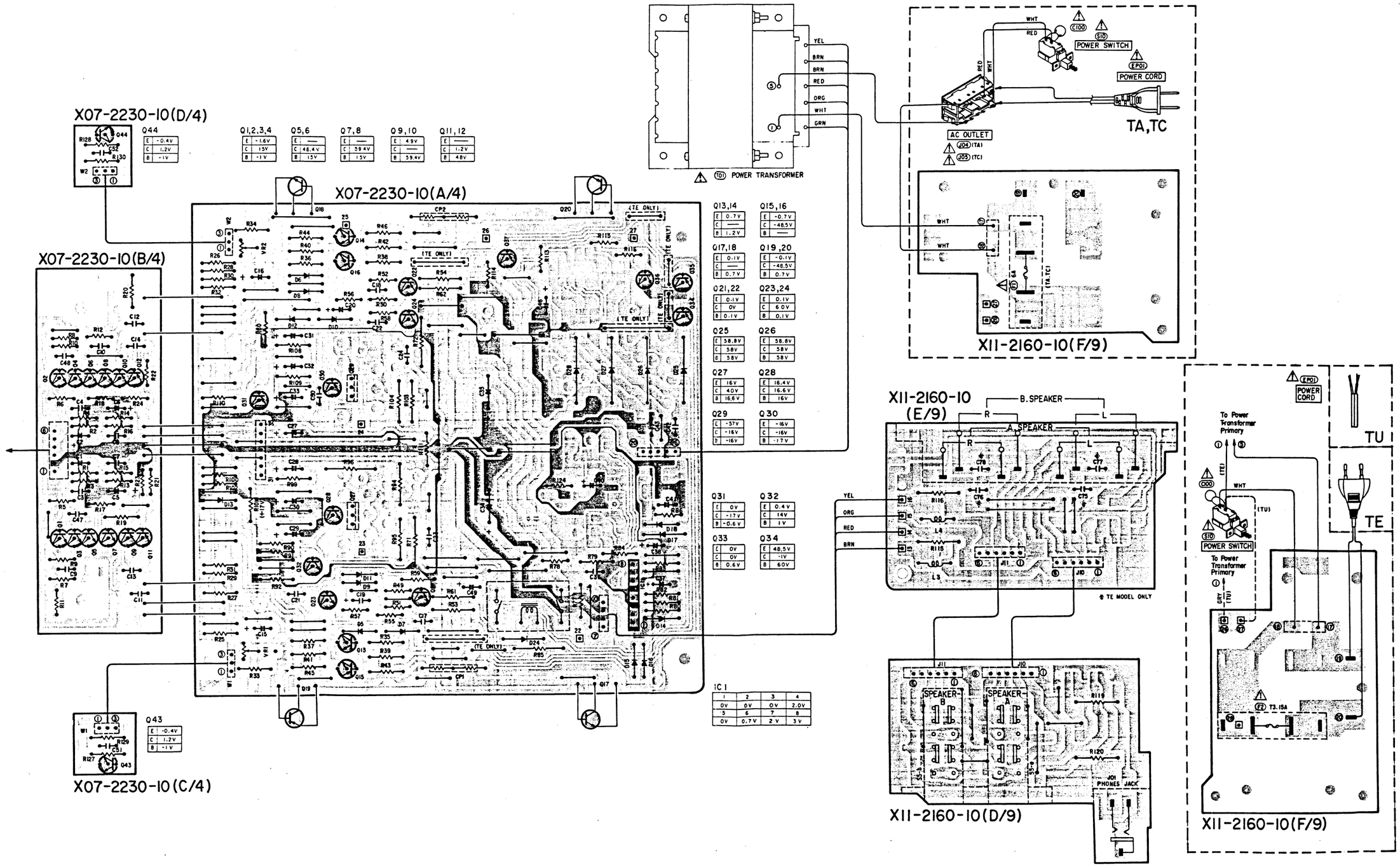
Electrolytic capacitor indicates ▭/▭ Working Voltage(V) / Capacitance(μF)

3, Switch Position

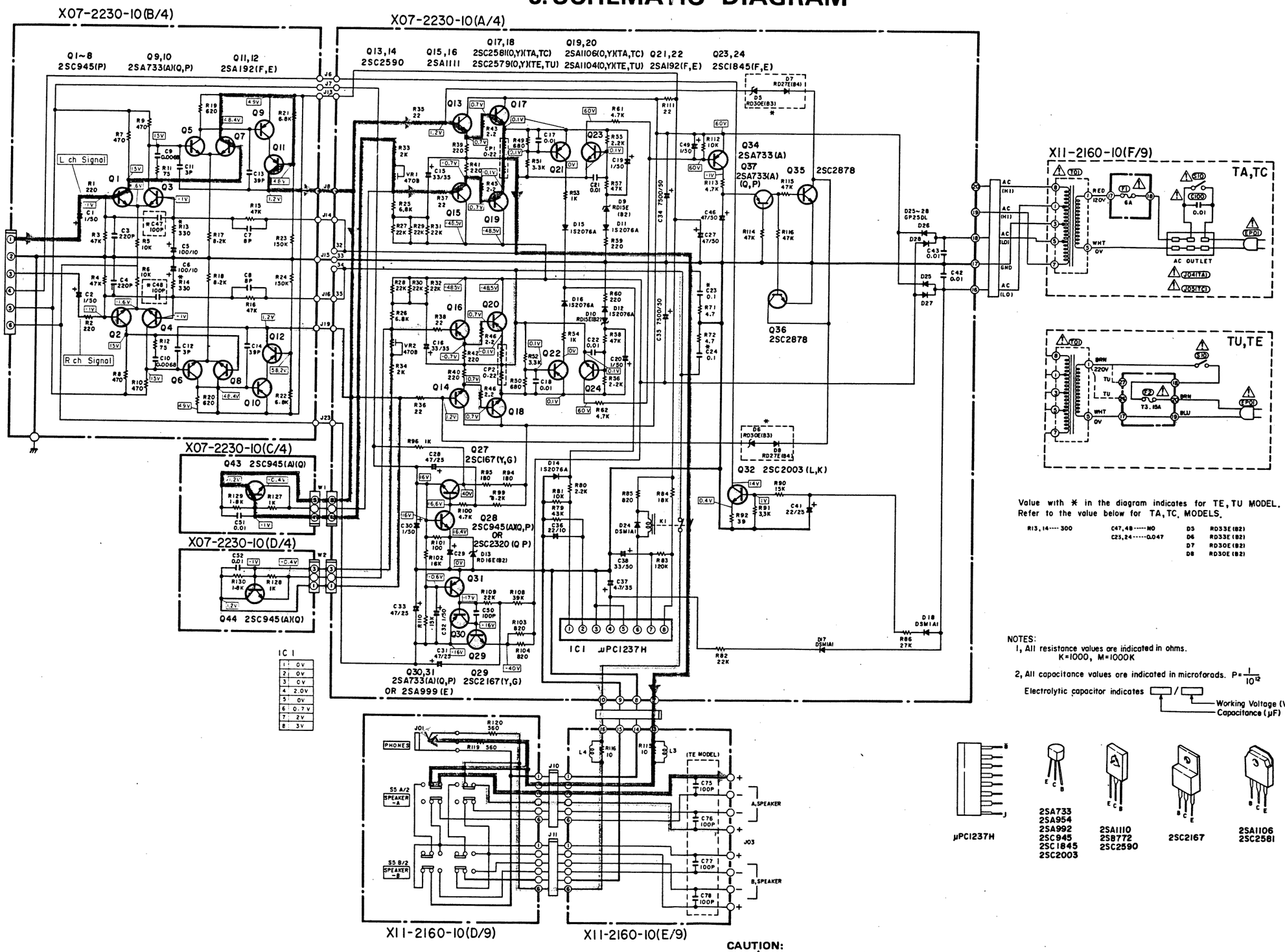
	Position
S1-a (PHONO)	ON
S1-b (TUNER)	OFF
S1-c (CD)	OFF
S1-d (TAPE 2)	OFF
S2-a(PHONO REC)	OFF
S2-b(TAPE 1)	OFF
S2-c(CD/AUX)	AUX
S3-a(LOUDNESS)	OFF
S3-b(SUBSONIC)	OFF
S3-c(MODE)	OFF
S4 (TONE)	OFF
S5-a(SPEAKER A)	ON
S5-b(SPEAKER B)	OFF
S8 (Turnover Select,100Hz/300Hz/1KHz)	300Hz
S9 (Turnover Select,1KHz/3KHz/10KHz)	3KHz
S10 (Power Switch)	OFF

CAUTION:
The ⚠ mark, the symbol No. circled with oval in the schematic diagram and the shaded area in the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list.

7. ELECTRICAL PARTS LOCATIONS



8. SCHEMATIC DIAGRAM



Value with * in the diagram indicates for TE, TU MODEL.
Refer to the value below for TA, TC, MODELS.

R13, 14 ---- 300	C47, 48 ---- NO	D5	RD33E(B2)
	C23, 24 ------ 0.047	D6	RD33E(B2)
		D7	RD30E(B2)
		D8	RD30E(B2)

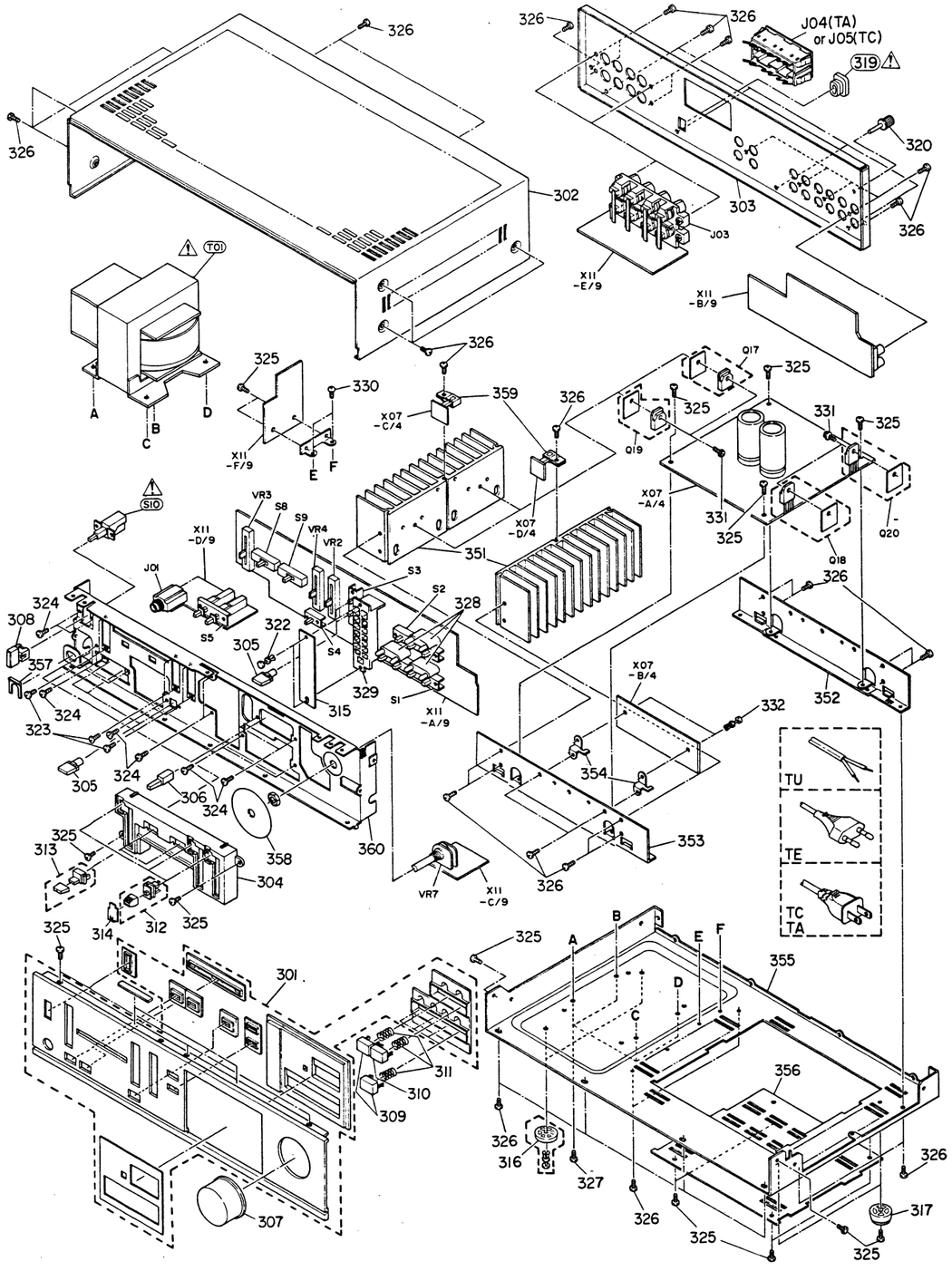
NOTES:
1, All resistance values are indicated in ohms.
K=1000, M=1000K

2, All capacitance values are indicated in microfarads. $P=\frac{1}{10^{12}}$

Electrolytic capacitor indicates ▭/▭ — Working Voltage (V) / Capacitance (μF)

CAUTION:
The ⚠ mark, the symbol No. circled with oval in the schematic diagram and the shaded area in the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list.

9. CABINET EXPLODED VIEW



NOTE: Parts excluded in the parts list are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

8. CABINET PARTS LIST

Symbol No.	Part No.	Description
301	22825482	Panel Ass'y
302	22841500	Top Cover
303	22801035	Back Panel (TA, TC)
303	22801034	Back Panel (TU)
303	22801033	Back Panel (TE)
304	22883164	Escutcheon, Slide
305	22884542	Knob, LOUDNESS/SUB-SONIC/MFR/SPEAKER A/B
306	22884543	Knob, CD/AUX
307	22884545	Knob, Volume
308	22827003	Knob Ass'y, Power
309	22827011	Knob Ass'y, SELECT
310	22827012	Knob Ass'y, PHONO REC
311	25777398	Spring, Knob
312	22827062	Knob Ass'y, Slide Volume
313	22827063	Knob Ass'y, BASS/TREBLE
314	22883165	Cover, Escutcheon
315	22838239	Decoration Board, Power Indicator
316	22828090	Foot, Low
317	22828091	Foot, High
318	22164957	Pin, Adaptor
319	25848041	Bush, AC Cord
320	22708058	Screw Terminal
321	22705047	Rivet (TU)
322	22705043	Push Rivet, Power Indicator
323	22708341	Screw, ϕ2 x 3mm, PAN
324	22701482	Screw, ϕ3 x 6mm, PAN
325	22707842	Screw, ϕ3 x 8mm, 2DTBID
326	22707911	Screw, ϕ3 x 8mm, 2DTBID
327	22707371	Screw, ϕ4 x 8mm
328	22883166	LED Holder
329	22883167	Holder, Power Indicator
330	22708486	Screw, ϕ3 x 6mm
331	22708223	Screw, ϕ3 x 12mm, Special
332	22705049	Push Rivet, ϕ3.5 x 4.5
333	22708487	Screw, ϕ3 x 8mm, TP Tapping

Symbol No.	Part No.	Description

9. PARTS LIST

CAUTION:
The ⚠ mark, the symbol No. circled with oval in the schematic diagram and the shaded area in the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list.

Symbol No.	Part No.	Description
IC's, TRANSISTORS AND DIODES		
MAIN AMP UNIT (X07-2230-10)		
IC1	22117386	IC, μPC1237H
Q1, 2, 3, 4, 5, 6, 7, 8	22114768	Transistor, 2SC945(A) (Q, P)
Q9, 10	22117250	Transistor, 2SA733(A) (Q, P)
Q11, 12	22117256	Transistor, 2SA992 (F, E)
Q13, 14	22117267	Transistor, 2SC2590 (Q, R)
Q15, 16	22117529	Transistor, 2SA1110 (Q, R)
Q17, 18	22117266	Transistor, 2SC2581 (TA, TC)
Q17, 18	22117342	Transistor, 2SC2579 (TE, TU)
Q19, 20	22117258	Transistor, 2SA1106 (TA, TC)
Q19, 20	22117341	Transistor, 2SA1104 (TE, TU)
Q21, 22	22117256	Transistor, 2SA992 (F, E)
Q23, 24	22117262	Transistor, 2SC1845 (F, E) or 2SC1980 (S, T)
Q27	22117397	Transistor, 2SC2167 (Y, G)
Q28	22117264	Transistor, 2SC2320 (E, F) or 2SC945 (A) (Q, P)
Q29	22117397	Transistor, 2SC2167 (Y, G)
Q30, 31	22117250	Transistor, 2SA733 (A) (Q, P) or 2SA999 (F, E)
Q32	22114577	Transistor, 2SC2003 (L, K)
Q34	22117250	Transistor, 2SA733 (A) (Q, P) or 2SA999 (E, F)
Q35, 36	A6342200	Transistor, 2SC2878
Q37	22117250	Transistor, 2SA733 (A) (Q, P) or 2SA999 (E, F)
Q43, 44	22114768	Transistor, 2SC945 (A) (Q)
D5, 6	22119055	Diode, RD33E (B3) (TA, TC)
D5, 6	22119046	Diode, RD30E (B2) (TE, TU)
D7, 8	22119046	Diode, RD30E (B2) (TA, TC)
D7, 8	22115592	Diode, RD27E (B4) (TE, TU)
D9, 10	22119119	Diode, RD15E (B)
D11, 12	22115882	Diode, 1S2076A
D13	22119131	Diode, RD16E (B)
D14, 15, 16	22115882	Diode, 1S2076A
D17, 18	22119029	Diode, DSM1A1
D24	22119029	Diode, DSM1A1
D25, 26, 27, 28	22119047	Diode, GP25DL

Symbol No.	Part No.	Description
CONTROL UNIT (X11-2160-10)		
IC1	22117432	IC, AN6555F or LA6458SS
IC3	22117552	IC, AN6556 or NJM4558D (A)
Q5, 6	22114768	Transistor, 2SC945(A) (Q, P)
D1, 2, 3, 4,	22119045	Diode, LN31YCPH, LED
D5	22115971	Diode, LN21CPH, LED
D6	22119045	Diode, LN31YCPH, LED
D24, 25	22115971	Diode, LN21CPH, LED
ELECTRICAL PARTS		
L3, 4	22210188	Coil
⚠ F1	22144530	Fuse, 250V, 5A (TA, TC)
⚠ F2	22144477	Fuse, 250V, T2A (TE)
⚠ F2	22144550	Fuse, 250V, 2A (TU)
K1	22148692	Relay
⚠ T01	22224561	Transformer, Power (TA, TC)
⚠ T01	22224562	Transformer, Power (TU)
⚠ T01	22224564	Transformer, Power (TE)
S1	22196485	Push Switch, Selector
S2	22196486	Push Switch, TAPE1/REC/CD
S3	22196487	Push Switch, LOUDNESS/-SUBSONIC
S4	22196488	Push Switch, MFR
S5	22196489	Push Switch, SPEAKER A/B
S8, 9	22196677	Slide Switch, BASS/TREBLE
⚠ S10	22196401	Push Switch, Power
J01	22198207	Jack, PHONE 3P
J02	22198053	Jack, PIN 4P
J03	22162541	Terminal 8P
⚠ J04	22169178	AC Outlet, 3P (TA)
⚠ J05	22169179	AC Outlet, 3P (TC)
CP1, 2	22570597	Composite Parts

CAPACITORS

C = ±0.25pF, D = ±0.5pF, J = ±5%, K = ±10%,
Z = −20 ∿ +80%
ABBREVIATIONS: CD = Ceramic Disk, EL = Electrolytic, PF = Plastic Film

MAIN AMP UNIT (X07-2230-10)

Symbol No.	Part No.	Description
C1, 2	22488109	EL, 1mfd, 50V
C3, 4	22362221	CD, 220pF, 50V, K
C5, 6	22483101	EL, 100mfd, 10V
C7, 8	22360369	CD, 8pF, 50V, D
C9, 10	22321269	PF, 6800pF, 50V, J
C11, 12	22360742	CD, 3pF, 50V, C
C13, 14	22362390	CD, 39pF, 50V, K
C15, 16	22487330	EL, 33mfd, 35V
C17, 18	22342103	CD, 0.01mfd, 50V, Z
C19, 20	22488109	EL, 1mfd, 50V
C21, 22	22342103	CD, 0.01mfd, 50V, Z
C23, 24, 25, 26	22372473	PF, 0.047mfd, 50V, K (TA, TU, TC)
C23, 24, 25, 26	22321267	PF, 0.1mfd, 50V, J (TE)
C27	22488470	EL, 47mfd, 50V
C28, 29, 30, 31	22486470	EL, 47mfd, 25V
C32	22488109	EL, 1mfd, 50V
C33	22486470	EL, 47mfd, 25V
C34, 35	22440695	EL, 7500mfd, 63V (TA, TC)
C34, 35	22440693	EL, 7500mfd, 50V (TE, TU)
C36	22443220	EL, 22mfd, 10V
C37	22447479	EL, 4.7mfd, 35V
C38	22488330	EL, 33mfd, 50V
C41	22486220	EL, 22mfd, 25V
C42, 43	22349103	CD, 0.01mfd, 50V, K
C46	22448220	EL, 22mfd, 50V
C47, 48	22362101	CD, 100pF, 50V (TE)
C49	22488109	EL, 1mfd, 50V
C50	22362101	CD, 100pF, 50V, K
C51, 52	22349102	CD, 1000pF, 50V, K

CONTROL UNIT (X11-2160-10)

Symbol No.	Part No.	Description
C1, 2	22446100	EL, 10mfd, 25V
C3, 4	22362221	CD, 220pF, 50V, K
C7, 8	22486101	EL, 100mfd, 10V, M
C9, 10	22349222	CD, 2200pF, 50V, K (TE)
C11, 12	22321266	PF, 0.012mfd, 50V, J
C13, 14	22321330	PF, 3300pF, 50V, J
C15, 16	22447479	EL, 4.7mfd, 35V
C17, 18, 19, 20, 21, 22, 23, 24, 25, 26	22349561	CD, 560pF, 50V, K (TE)
C27, 28, 29, 30, 31, 32, 33	22342103	CD, 0.01mfd, 50V, Z
C41, 42	22488109	EL, 1mfd, 50V
C43, 44	22349221	CD, 220pF, 50V, K
C45, 46, 47, 48	22349561	CD, 560pF, 50V, K (TA, TC, TU)
C49, 50	22446100	EL, 10mfd, 25V
C51, 52	22321278	PF, 3900pF, 50V, J
C53, 54	22321279	PF, 8200pF, 50V, J
C55, 56	22321280	PF, 0.036mfd, 50V, J
C57, 58	22321278	PF, 3900pF, 50V, J
C59, 60	22321280	PF, 0.036mfd, 50V, J
C61, 62	22321279	PF, 8200pF, 50V, J
C63, 64	22447479	EL, 4.7mfd, 35V
C65, 66	22488228	EL, 0.22mfd, 50V
C67, 68	22321281	PF, 0.047mfd, 50V, J
C69, 70	22342103	CD, 0.01mfd, 50V, Z
C73, 74	22321273	PF, 0.033mfd, 50V, J
C75, 76, 77, 78	22362101	CD, 100pF, 50V, J (TE)

RESISTORS

All resistors are carbon film 1/6W, ±5% unless otherwise noted. K = 1000, M = 1000K

MAIN AMP UNIT (X07-2230-10)

Symbol No.	Part No.	Description
R1, 2	22584221	220 ohm
R3, 4	22584473	47K ohm
R5, 6	22584103	10K ohm
R7, 8, 9, 10	22584471	470 ohm
R11, 12	22580071	62 ohm (TA, TC, TU)
R11, 12	22580056	75 ohm (TE)
R13, 14	22580078	300 ohm (TA, TC)
R13, 14	22584331	330 ohm (TE, TU)
R15, 16	22584473	47K ohm
R17, 18	22584822	8.2K ohm
R19, 20	22540802	620 ohm, 1/4W
R21, 22	22584682	6.8K ohm
R23, 24	22584154	150K ohm
R25, 26	22545682	6.8K ohm, 1/4W
R27, 28, 29, 30, 31, 32,	22545223	22K ohm, 1/4W

Symbol No.	Part No.	Description
R33, 34	22540580	2K ohm, 1/4W
R35, 36, 37, 38	22545220	22 ohm, 1/4W
R39, 40, 41, 42	22545221	220 ohm, 1/4W
R43, 44, 45, 46	22545229	2.2 ohm, 1/4W
R49, 50	22584681	680 ohm
R51, 52	22584332	3.3K ohm (TA, TC, TU)
R51, 52	22545332	3.3K ohm, 1/4W (TE, TU)
R53, 54	22545102	1K ohm, 1/4W
R55, 56	22584222	2.2K ohm (TA, TC, TU)
R55, 56	22545222	2.2K ohm 1/4W (TE)
R57, 58	22584473	47K ohm
R59, 60	22545221	220 ohm, 1/4W
R61, 62	22545472	4.7K ohm, 1/4W
R71, 72	22570359	4.7 ohm, 2W, Metal Oxide Film
R77	22545474	470K ohm, 1/4W
R78	22584474	470K ohm
R79	22540803	43K ohm, 1/4W
R80	22545222	2.2K ohm, 1/4W
R81	22545103	10K ohm, 1/4W
R82	22545223	22K ohm, 1/4W
R83	22545124	120K ohm, 1/4W
R84	22545183	18K ohm, 1/4W
R85	22570318	820 ohm, 2W, Metal Oxide Film
R86	22584273	27K ohm
R90	22545153	15K ohm, 1/4W
R91	22545332	3.3K ohm, 1/4W
R92	22545390	39 ohm, 1/4W
R94, 95	22570265	180 ohm, 1W, Metal Oxide Film (TE)
R94, 95	22570310	180 ohm, 2W, Metal Oxide Film (TU)
R96	22570319	1K ohm, 2W, Metal Oxide Film
R99	22545822	8.2K ohm, 1/4W
R100	22545472	4.7K ohm, 1/4W
R101	22545101	100 ohm, 1/4W
R102	22540804	16K ohm, 1/4W
R103, 104	22570273	820 ohm, 1W, Metal Oxide Film (TA, TC, TE)
R103, 104	22570318	820 ohm, 2W, Metal Oxide Film (TU)
R108	22545393	39K ohm, 1/4W
R109	22545223	22K ohm, 1/4W
R110	22545152	1.5K ohm, 1/4W
R111	22545220	22 ohm, 1/4W
R112	22584103	10K ohm
R113	22584472	4.7K ohm
R114, 115, 116	22584473	47K ohm
R127, 128	22545102	1K ohm, 1/4W
R129, 130	22545182	1.8K ohm, 1/4W
VR1, 2	22658874	470 ohm, Semi-fixed Variable

CONTROL UNIT (X11-2160-10)

R1, 2	22584181	180 ohm (TA, TC, TU)
R1, 2	22584821	820 ohm (TE)
R3, 4	22584473	47K ohm
R11, 12	22584220	22 ohm (TE)
R17, 18	22584391	390 ohm
R19, 20	22584274	270K ohm
R21, 22	22584223	22K ohm
R23, 24	22584473	47K ohm
R25, 26	22584332	3.3K ohm
R27, 28, 29, 30, 31, 32, 33, 34, 35, 36	22580058	1.1K ohm
R45, 46	22584102	1K ohm
R47, 48	22584334	330K ohm
R49, 50	22584223	22K ohm
R51, 52,	22584332	3.3K ohm
R53, 54	22584332	3.3K ohm
R55, 56	22584102	1K ohm
R57, 58	22584184	180K ohm
R59, 60	22584562	5.6K ohm
R61, 62	22584472	4.7K ohm
R63, 64	22584102	1K ohm
R65, 66	22584223	22K ohm
R77	22584332	3.3K ohm
R79, 80	22584103	10K ohm
R115, 116	22570250	10 ohm, 1W, Metal Oxide Film
R119, 120	22570271	560 ohm, 1W, Metal Oxide Film
R121, 122	22584105	1M ohm
R123, 124	22584331	330 ohm (TE)
VR2	22657377	200K ohm, Variable
VR3, 4	22657378	100K ohm, Variable
VR7	22651590	100K ohm, Variable

ACCESSORIES

AC01	22904568	Owner's Manual (TA)
AC01	22904569	Owner's Manual (TC)
AC01	22904567	Owner's Manual (TU)
AC01	22904566	Owner's Manual (TE)